SECTION 643

TRAFFIC MAINTENANCE

643-1.01 DESCRIPTION. Protect and control traffic during the contract. Furnish, erect, maintain, replace, clean, move and remove the traffic control devices required to ensure the traveling public's safety. Perform all administrative responsibilities necessary to implement this work.

Maintain all roadways and pedestrian and bicycle facilities affected by the work in a smooth and passable condition. Construct and maintain approaches, crossings, intersections, and other necessary features throughout the project for the life of the contract.

643-1.02 DEFINITIONS.

ATM. When used in this Section, ATM stands for the *Alaska Traffic Manual*, which is the MUTCD with Alaska Supplement.

Construction Phasing Plan. A plan for each phase of the project showing how you will accommodate traffic. Show the sequence of work by segment or phase, if required.

Traffic. The movement of vehicles, pedestrians, and bicyclists through road construction, maintenance operations, utility work, or similar operations.

Traffic Control Plan (TCP). A drawing or drawings indicating the method or scheme for safely guiding and protecting motorists, pedestrians, bicyclists, and workers in a traffic control zone. The TCP depicts the traffic control devices and their placement and times of use.

Traffic Control Zone. A portion of a road construction project, maintenance operation, utility work or similar operation that affects traffic and requires traffic control to safely guide and protect motorists, pedestrians, bicyclists, or workers.

643-1.03 TRAFFIC CONTROL PLAN. Implement an approved TCP before beginning work within the project limits.

The TCP includes, but is not limited to, signs, barricades, traffic cones, plastic safety fence, sequential arrow panels, portable changeable message board signs, special signs, warning lights, portable concrete barriers, crash cushions, flaggers, pilot cars, interim pavement markings, temporary lighting, temporary roadways and all other items required to direct traffic through or around the traffic control zone according to these Specifications and the ATM. Address in the TCPs placement of traffic control devices, including location, spacing, size, mounting height and type. Include code designation, size, and legend per the ATM and the ASDS.

When a TCP is included in the Plans, use it, modify it, or design an alternative TCP. When a TCP is omitted from the Plans, provide one according to this Section and the ATM.

Submit new or modified TCPs to the Engineer for approval. Allow 1 week for the Engineer to review any TCP or each subsequent correction. You may change an approved TCP during construction provided you allow 48 hours for review and the Engineer approves the changes.

Certify by signature of the Worksite Traffic Supervisor that all TCPs conform with the ATM and Specifications. The Engineer will not accept the TCP without Worksite Traffic Supervisor's certification. Have your superintendent review and sign all TCPs before you submit them.

In all TCPs you submit, include the periods for which the TCP will be in effect. Provide the name and 24-hour telephone number of the Worksite Traffic Supervisor.

The TCPs, Plans, and Standard Drawings show the minimum required number of traffic control devices. If unsafe conditions occur, the Engineer may require additional traffic control devices.

Use of oversize and overweight equipment within the project must conform to an approved TCP, including all traffic control devices these operations require.

643-1.04 WORKSITE TRAFFIC SUPERVISOR. Provide a Worksite Traffic Supervisor responsible for maintaining 24-hour traffic operations.

1. Qualifications. Ensure the Worksite Traffic Supervisor understands ATM requirements, the Plans, the Specifications, your proposed operations, and is certified as one of the following:

    a. Worksite Traffic Supervisor certified by the American Traffic Safety Services Association (ATSSA)

    b. Work Zone Traffic Safety Specialist or a Signs and Markings Specialist certified by the International Municipal Signal Association (IMSA)

    Item b requires documentation of at least 12 months of supervisory-level worksite traffic control or 12 months of responsible charge of such work. "Responsible charge" means that the Worksite Traffic Supervisor has been accountable for selecting devices and placing them in the traffic control system, or for continued system operation. The Worksite Traffic Supervisor satisfies this requirement if he has supervised persons performing this labor.

    Renew certification a minimum of every 4 years, or as required by the certifying agency.

2. Duties.

    a. Prepare the TCPs and public notices and coordinate traffic control operations between the Project Superintendent and the Engineer.

    b. Supervise the inspection of the condition and position of all traffic control devices used on the project at least once each day and once each night. Ensure that traffic control devices work properly, are clean and visible, and conform to the approved TCPs. Furnish a detailed written report of each inspection to the Engineer within 24 hours.

    c. Supervise the repair or replacement of damaged or missing traffic control devices.

    d. Review and anticipate traffic control needs. Make available proper traffic control devices necessary for safe and efficient traffic movement.

    e. Review work areas, equipment storage, and traffic-safety material handling and storage.

    f. Hold traffic safety meetings with superintendents, foremen, subcontractors, and others as appropriate before beginning construction, prior to implementing a new TCP, and as directed. Invite the Engineer to these meetings.

    g. Supervise all traffic control workers, flaggers, and pilot car drivers.

    h. Certify that all flaggers conform to Subsection 643-3.04.4.

643-1.05 CONSTRUCTION PHASING PLAN. Submit a Construction Phasing Plan for approval no less than 5 working days prior to the preconstruction conference. Include the following:

1. Name and 24-hour telephone numbers of the Worksite Traffic Supervisor. Also include his resume and written verification of his credentials.

2. A plan for each phase or segment of the project.

3. TCPs for the first phase of the project. Show permanent and temporary traffic control measures, including the times each TCP will be used.

Submit any changes to the Engineer for approval 7 days before proposed implementation.

643-1.06 TRAFFIC MAINTENANCE SETUP. When shown on the bid schedule, Traffic Maintenance Setup items are site specific and are detailed as individual TCPs on the plan sheets. They depict the method or scheme required to route traffic safely and efficiently when any of the following restrictions occur:

1. Lane Closure. The closure of one or more lanes on a roadway.
2. Detour. The redirection of traffic through or around a traffic control zone.
3. Road Closure. The closure of a roadway with or without a specified detour route.
4. One Lane Road. A two-way roadway reduced to a single-lane roadway with flaggers, pilot cars, traffic signals, stop signs, or yield signs.

643-2.01 MATERIALS. Provide traffic control devices meeting the following requirements:

1. Signs. Use signs, including sign supports, that conform to Section 615, the ATM, and ASDS.
   a. Construction Signs: Regulatory, guide, or construction warning signs designated in the ASDS.
   b. Permanent Construction Signs: As designated on the Plans or an approved TCP.
   c. Special Construction Signs: All other signs are Special Construction Signs. Neatly mark the size of each sign on its back in 3-inch black numerals.

2. Portable Sign Supports. Use wind-resistant sign supports with no external ballasting. Use sign supports that can vertically support a 48 X 48 inch traffic control sign at the height above the adjacent roadway surface required by the ATM.

3. Barricades and Vertical Panels. Use barricades and vertical panel supports that conform to the ATM. Use Type III Barricades at least 8 feet long. Use reflective sheeting that meets AASHTO M 268 Type II or III.

4. Portable Concrete Barriers. Use portable concrete barriers that conform to the Plans. For each direction of traffic, equip each 10-foot section of barrier with at least two side-mounted retroreflective reflectors or a continuous 4-inch wide horizontal retroreflective stripe mounted 6 inches below the top of the barrier. Use yellow reflectors or stripe if you use barriers at centerline. Use white reflectors or stripe if you use barriers on the roadway shoulder.

5. Warning Lights. Use Type A (low intensity flashing), Type B (high intensity flashing) or Type C (steady burn) warning lights that conform to the ATM.

6. Drums. Use plastic drums that conform to the requirements of the ATM. Use reflective sheeting that meets AASHTO M 268 Type II or III.

7. Traffic Cones and Tubular Markers. Use reflectorized traffic cones and tubular markers that conform to the requirements of the ATM. Use traffic cones and tubular markers at least 28 inches high. Use reflective sheeting that meets AASHTO M 268 Type II or III.

8. Interim Pavement Markings. Apply markings according to Section 670 and the manufacturer's recommendations. Use either:
   a. Paint meeting Subsection 708-2.03 with glass beads meeting Subsection 712-2.08,
   b. Preformed Marking Tape (removable or non-removable) meeting Subsection 712-2.14, or
   c. Temporary Raised Pavement Markers meeting Subsection 712-2.15 or 712-2.16, as appropriate.

9. High-Level Warning Devices. Use high-level warning devices that conform to the ATM.

10. Temporary Crash Cushions. Use approved temporary crash cushions meeting the ATM. Use reflective sheeting that meets AASHTO M 268 Type II or III. Do not use permanent crash cushions as temporary crash cushions. Use sand or water filled crash cushions only when the forecasted temperature during their use is above 40 ^{o}F.

11. Sequential Arrow Panels. Use Type A (24 X 48 inch), Type B (30 X 60 inch) or Type C (48 X 96 inch) panels that conform to the ATM.

12. Portable Changeable Message Board Signs. Use truck or trailer mounted portable changeable message board signs with a self contained power supply for the sign and with the following features:
    a. Message sign panel large enough to display 3 lines of 9 inch high characters
    b. Eight character display per message line
    c. Fully programmable message module
    d. The capacity to create, preview, and display new messages and message sequences
    e. A waterproof, lockable cover for the controller keyboard
    f. An operator's manual, a service manual, and a wiring diagram
    g. Quick release attachments on the display panel cover
    h. Variable flash and sequence rates
    i. Manual and automatic dimming capabilities on lamp bulb matrix models
    j. Locate the bottom of the sign panel at least 7 feet above the pavement
    k. Operate with a battery pack a minimum of 2 hours under full load

13. Plastic Safety Fence. Use 4 foot high construction orange fence manufactured by one of the following companies, or an approved equal:
    a. "Safety Fence" by Services and Materials Company, Inc., 2200 South "J" Street, Elwood, Indiana, 46036. Phone (800) 428-8185.
    b. "Flexible Safety Fencing" by Carsonite, 1301 Hot Springs Road, Carson City, Nevada, 89706. Phone (800) 648-7974.
    c. "Warning Barrier Fence" by Plastic Safety Systems, Inc. P.O. Box 20140, Cleveland, Ohio, 44120. Phone (800) 662-6338.

14. Temporary Sidewalk Surfacing. Provide temporary sidewalk surfacing as required by an approved TCP and the following:
    a. Use plywood at least 1/2 inch thick for areas continuously supported by subgrade. Use plywood at least 1 inch thick for areas that are not continuously supported.
    b. Do not use unsupported 1-inch plywood longer than 30 inches.
    c. Use plywood with regular surfaces. Do not overlap plywood joints higher than 1 inch.
    d. Use a method that will withstand 25 mph wind velocities to hold temporary surfacing in place.

15. Temporary Guardrail. Use temporary guardrail that meets Section 606, except that posts may require placement under special conditions, such as in frozen ground.

16. Flagger Paddles. Use flagger paddles with 24 inches wide by 24 inches high sign panels, 8 inch Series C lettering (see ASDS for definition of Series C), and otherwise conform to the ATM. Use reflective sheeting that meets AASHTO M 268 Type II or III.

643-2.02 CRASHWORTHINESS. Submit documentation, by the method indicated, that the following devices comply with the requirements of National Cooperative Highway Research Program (NCHRP) Report 350 (Test Level 3) on the given schedule.

Work Zone Traffic Control Device Compliance with NCHRP 350				
Category	**Devices**	**Compliance Required for New Devices***	**Full Compliance Required****	**Method of Documentation**
1	Cones, candles, drums w/o attachments, delineators	10/1/98	1/1/02	Manufacturer's Certification for devices exceeding height

				and weight limits
2	Barricades, portable sign supports, drums w/lights, other devices weighing less than 100 pounds but not included in category 1	10/1/00	1/1/04	FHWA approval letter
3	Truck mounted attenuators and portable crash cushions	10/1/98	1/1/02	FHWA approval letter
	Portable concrete barriers	10/1/02	1/1/08	FHWA approval letter

* All devices purchased after this date

** All devices used after this date

Category 1 devices that exceed the following weights and heights require certification that they meet the evaluation criteria of NCHRP Report 350, Test Level 3. This certification may be a one-page affidavit signed by the vendor. Documentation supporting the certification (crash tests and/or engineering analysis) must be kept on file by the certifying organization. No certification is required for devices within the weight and height limitations.

Device	Composition	Weight	Height
Cones	Rubber	20 lb.	36 in.
	Plastic	20 lb.	48 in.
Candles	Rubber	13 lb.	36 in.
	Plastic	13 lb.	36 in.
Drums	Hi Density Plastic	77 lb.	36 in.
	Lo Density Plastic	77 lb.	36 in.
Delineators	Plastic or Fiberglass	N/A	48 in.

Category 2 and the listed **category 3** devices may be documented by submitting an official letter from the Federal Highway Administration stating that the device meets NCHRP 350 Test Level 3 requirements. FHWA acceptance letters for many devices may be found on the FHWA's web site (http://www.fhwa.dot.gov/), under FHWA Programs, Safety, NCHRP Report 350 - Roadside Hardware.

Submit documentation of compliance to the Engineer before using devices on the project.

643-3.01 GENERAL CONSTRUCTION REQUIREMENTS. Keep the work, and portions of the project affected by the work, in good condition to accommodate traffic safely. Provide and maintain traffic control devices and services inside and outside the project limits, day and night, to guide traffic safely.

Unless otherwise provided in this Section, keep all roadways, business accesses, and pedestrian facilities within the project limits open to traffic. Obtain the Engineer's approval before temporarily closing residential, commercial, or street approaches. Provide access through the project for emergency vehicles and school and transit buses. Properly sign and/or flag all locations where you must redirect or stop the traveling public.

Stop your equipment at all points of intersection with the traveling public unless an approved TCP shows otherwise.

Continue to operate all illumination and signalization according to the requirements of Subsection 660-3.09. When moving approach lanes, realign signal heads as necessary according to the ATM. Coordinate any modifications to existing traffic signals with the agency that maintains and operates them. Operate flood lighting at night according to the ATM. Adjust flood lighting so that it does not shine into oncoming traffic.

Provide and maintain safe routes for pedestrians and bicyclists through or around traffic control zones at all times, except when regulations prohibit pedestrians or bicyclists.

643-3.02 ROADWAY CHARACTERISTICS DURING CONSTRUCTION. Obtain an approved TCP before reducing existing roadway lane and shoulder widths before starting construction. Maintain a clear area with at least

2 feet between the edge of traveled way and the work area. Use barricades, traffic cones, or drums to delineate this area. Place traffic control devices on the work side of the clear area. Space them according to the ATM.

If you are allowed to maintain traffic on an unpaved surface, conduct construction to provide a smooth and even surface that public traffic can use at all times. Properly crown the roadbed surface for drainage. Before beginning other grading operations, place sufficient fill at culverts and bridges to permit traffic to cross smoothly and unimpeded. Use part-width construction techniques when routing traffic through roadway cuts or over embankments under construction. Excavate the material or place it in layers. Alternate construction activities from one side to the other. Route traffic over the side opposite the one under construction.

You may detour traffic when the Plans or an approved TCP allows it. Maintain detour routes so that traffic can proceed safely. When detours are no longer required, obliterate the detour. Topsoil and seed appropriate areas.

If you cannot maintain two-way traffic on the existing roadway or detour, you may use half-width construction or a road closure if it is shown on an approved TCP. Make sure the TCP indicates closure duration and conditions. Schedule roadway closures so you do not delay school buses and peak-hour traffic. For road closures, post closure-start and road-reopen times at the closure site, within view of waiting traffic.

643-3.03 PUBLIC NOTICE. Make sure the Worksite Traffic Supervisor gives notices of major changes, delays, lane restrictions, or road closures to local officials and transportation organizations, including but not necessarily limited to:

- Alaska Carriers Association
- Alaska Trucking Association
- Alaska State Troopers
- Division of Measurement Standards
- Local Police Department
- Local Fire Department
- Local Government Traffic Engineer
- School and Transit Authorities
- Local Emergency Medical Services
- Local Media (newspapers, radio, television)
- Railroads (where applicable)
- U.S. Postal Service
- Major Tour Operators

Provide local traffic enforcement and maintenance agencies 24 hour notice before shutting down a traffic signal system.

Provide the Alaska State Troopers, local police and fire department with the radio frequencies used on the project and the 24-hour telephone numbers of the Worksite Traffic Supervisor and the Project Superintendent. Tell them to use these numbers to alert you when emergency vehicles must pass through the project. When notified of emergencies, use all equipment and make every necessary effort to expedite rapid passage.

643-3.04 TRAFFIC CONTROL DEVICES. Before starting construction, erect permanent and temporary traffic control devices required by the approved TCPs. Use traffic control devices only when they are needed. The Engineer will determine advisory speeds when necessary.

For lane closures on multilane roadways, use sequential arrow panels. During hours of darkness when required by the approved TCP use flashing warning lights to mark obstructions or hazards and steady-burn lights for channelization.

Use only one type of traffic control device in a continuous line of delineating devices, unless otherwise noted on an approved TCP. Use drums or Type II barricades for lane drop tapers.

During non-working hours and after completing a particular construction operation, remove all unnecessary traffic control devices. Store all unused traffic control devices in a designated storage area which does not present a nuisance or visual distraction to traffic. If sign panels are post mounted and cannot be readily removed, cover them entirely with either metal or plywood sheeting. Completely cover signal heads with bags.

Keep signs, drums, barricades, and other devices clean at all times.

Use only traffic control devices that meet the requirements of ATSSA *Quality Standard for Work Zone Traffic Control Devices*.

Immediately replace any devices provided under this Section that are lost, stolen, destroyed, inoperable or deemed unacceptable while used on the project. Stock repair parts for each Temporary Crash Cushion used on the project. Repair damaged crash cushions within 24 hours.

All items paid under this Section remain your property. Remove them after completing the project.

1. Embankments. Install portable concrete barrier, plastic drums, barricades, tubular markers, plastic safety fence, and cones as specified on the Plans or TCPs to delineate open trenches, ditches, other excavations and hazardous areas when they exist along the roadway for more than one continuous work shift.

2. Adjacent Travel Lane Paving. Limit pavement-edge and lane-edge drop-offs as specified in Section 401. When paving is deeper than 2 inches and you cannot finish paving adjacent travel lanes or paved shoulders to the same elevation before the end of the paving shift, install one of the following, as appropriate: CW24-1 (Uneven Lanes), CW8-9A (Low Shoulder), CW14-3 (No Passing Zone), R4-1 (Do Not Pass), and R4-2 (Pass with Care). If the section is longer than 1/2 mile, place additional signs every 1500 feet.

3. Fixed Objects. Use flashing warning lights on all vehicles when they are working within 15 feet of the edge of traveled way. Use emergency flashers, flashing strobes or rotating beacons.

   Locate private vehicles, idle construction equipment, construction material stockpiles and other items deemed by the Engineer to be fixed objects at least 30 feet from the edge of traveled way at all times. Do not park equipment in medians.

   If you cannot meet the preceding restrictions because of land features or lack of right-of-way, park equipment as far away as practical but at least 15 feet from the edge of traveled way, as approved by the Engineer. Use drums or Type II barricades with flashing warning lights to delineate parked equipment. These traffic control devices are subsidiary.

4. Flagging. Furnish trained and competent flaggers and all necessary equipment, including lighting of the flagging position during nighttime operations, to control traffic through the traffic control zone. The Engineer will approve each flagging operation before it begins and direct adjustments as conditions change.

   Flaggers must be certified by one of the following:
   a. Flagging Level I Certification by IMSA
   b. Flagger Certification by ATTSA

   Acceptable substitutions for items a. and b. are certified ATSSA Worksite Traffic Supervisors, IMSA Work Zone Traffic Safety Specialists, IMSA Signs and Markings Specialists and ATSSA Flagging Instructors.

   Renew certification a minimum of every 4 years, or as required by the certifying agency.

   Flaggers must maintain their assigned posts at all times, unless another qualified flagger relieves them, or you no longer need to flag traffic. Remove, fully cover, or lay down flagger signs when no flagger is present. Keep the flaggers' area free of encumbrances, such as parked vehicles, so that flaggers can be seen easily.

Provide approved equipment for two-way radio communications between flaggers when flaggers are not in plain, unobstructed view of each other.

Obtain the Engineer's written approval before flagging signalized intersections. When you flag a signalized intersection, either turn off and cover the traffic signal or place it in the All-Red Flash mode. Coordinate changing traffic signal modes and turning off or turning on traffic signals with the agency responsible for signal maintenance and operation and the Engineer. Get their written approval in advance. Use double sided stop/stop paddles when flagging a signalized intersection.

5. Pilot Cars. You may use pilot cars if the route through a traffic control zone which is particularly hazardous, involved, or frequently altered to preclude adequate signing, or if the Engineer deems one-way traffic necessary. Do not use pilot cars to avoid localized traffic control at several locations.

   Organize construction operations so the total of all stoppages experienced by a vehicle traveling through a project does not exceed 20 minutes. However, this does not imply that you may allow 20 minutes in all cases. Coordinate multiple pilot-car operations within a project or adjoining projects to minimize inconvenience to the traveling public. You may use two or more pilot cars to provide two-way traffic through the traffic control zone to reduce the waiting period. The flagger or pilot car operator must record each pilot car's departure time in a bound field book furnished by the Engineer. Whenever practical, the flagger should tell the motorist the reason for and approximate length of the delay. Make every reasonable effort to yield right-of-way to the public and prevent excessive delay.

   Use an automobile or pickup as the pilot car, with your company logo prominently displayed. Equip the pilot car with a two-way radio for contact with flaggers and other pilot cars. Mount a G20-4 sign (Pilot Car Follow Me) on the rear at least 5 feet above the driving surface. Identify the last vehicle in the column.

   When pilot cars are authorized, use them before beginning work and continue until no longer necessary or until you have properly placed and checked functioning of all traffic control devices required for non-working hours.

6. Street Sweeping and Power Brooming. Keep free of loose material all paved portions of the roadway and haul routes open to the public, including sections of roadway off the project where your operations have deposited loose material. Use a power broom that can eject the material outside the traveled way. Use a street sweeper that can collect the material.

7. Watering. Furnish, haul, and place water for dust control and pavement flushing, as directed. Use water trucks that can provide a high-pressure water stream to flush the pavement and a light-water spray to control dust. If the flushing operations contaminate or fill adjacent catch basins, clean and restore them to their original condition. This requirement includes sections of roadway off the project where flushing is required. The Engineer will control water application.

   If you take water from a lake, stream, or other natural water body, first obtain a water removal permit from the Alaska Department of Natural Resources. Comply with the Alaska Department of Fish and Game screening requirements for all water removal operations.

8. Portable Changeable Message Board Signs. Furnish Changeable Message Signs when approved on a TCP. Display only messages approved on the TCP. Follow application guidelines in the ATM.

643-3.05 AUTHORITY OF THE ENGINEER. When the Engineer believes existing conditions may adversely affect the traveling public's safety and/or convenience, you will receive a written notice. The notice will state the defect(s), the corrective action(s) required, and the time required to complete such action(s). If you fail to take corrective action(s) within the specified time, the Engineer will immediately close down the offending operations until you correct the defect(s). The Engineer may require outside forces to correct unsafe conditions. The cost of work by outside forces will be deducted from any monies due under the terms of this Contract.

643.3.06 TRAFFIC PRICE ADJUSTMENT. A Traffic Price Adjustment, under Item 643(23), will be assessed for unauthorized lane closures or reductions.

Authorized lane closures and/or lane reductions are those shown in the Contract, an approved TCP, or authorized in writing. Unauthorized lane reductions include unacceptable driving surfaces, such as severe bumps, ruts, washboarding, potholes, excessive dust or mud, and non-conforming or out of place traffic control devices. The Engineer will make the sole determination as to whether the roadway is acceptable for full unimpeded use by the public.

Adjustment Rates are listed in Table 643-1. These rates are liquidated damages which represent highway user costs, based on Average Daily Traffic (ADT). The Engineer will use the rate shown for the current ADT for this project, as published in the Regional Traffic Volume Report prepared by the Department's Planning Section.

TABLE 643-1
ADJUSTMENT RATES

Published ADT	Dollars/Minute of Delay/Lane
Less than 1,000	$2
1,000-4,999	$10
5,000-9,999	$30
10,000+	$40

643-3.07 MAINTENANCE OF TRAFFIC DURING SUSPENSION OF WORK. Approximately one month before you suspend work for the season, schedule a preliminary meeting with the Engineer and Maintenance & Operations to outline the work you expect to complete before shutdown and the anticipated roadway condition. Schedule a field review with the Department for winter maintenance acceptance. At the field review the Engineer will prepare a punch list for implementation before acceptance.

To be relieved of winter maintenance responsibility, leave all roads with a smooth and even surface for public use at all times. Properly crown the roadbed surface for drainage and install adequate safety facilities. Make sure all illumination and signals, including vehicle detectors, are in good working order.

After the project is accepted for winter maintenance and until you are ordered to resume construction operations, the Department is responsible for maintaining the facility. The Department will accept maintenance responsibility only for portions of the work that are open to the public, as determined by the Engineer. The Department will not accept maintenance responsibility for incomplete work adjacent to accepted roads. You are responsible for maintaining all other portions of the work. The Engineer will issue a letter of "Acceptance for Winter Maintenance" that lists all portions of the work that the Department will maintain during a seasonal work suspension. You retain all contractually required maintenance responsibilities until you receive this letter.

If you suspend work due to unfavorable weather (other than seasonal) or due to your failure to correct unsafe conditions, carry out Contract provisions, or carry out the Engineer's orders, you must bear all costs for traffic maintenance during the suspended period.

When you resume work, replace or renew any work or materials lost or damaged during temporary use. If the Department caused damage during winter suspension, payment will be made for repairs by unit pay item or in accord with Subsection 109-1.05, Compensation for Extra Work. When the Engineer directs, remove any work or materials used in the temporary maintenance. Complete the project as though work has been continuous.

643-3.08 CONSTRUCTION SEQUENCING. The construction sequencing detailed in these provisions, the Special Provisions, and the Plans is suggested only. You may propose alternative construction sequencing.

Throughout the project, maintain the existing roadway configuration (such as the number of lanes and their respective widths) except for restrictions to traffic allowed in the Special Provisions or on the Plans, and addressed through approved TCPs. A restriction to traffic is any roadway surface condition, work operation, or traffic control setup that reduces the number of lanes or impedes traffic. Obtain an approved TCP before restricting traffic.

Do not restrict traffic or shut down signals during the times listed in the Special Provisions.

643-3.09 INTERIM PAVEMENT MARKINGS. Place permanent or interim pavement markings according to this Subsection, details shown on the Plans, approved TCPs, and Parts III and VI of the ATM before opening existing paved roadways, temporary paved roadways, detours, interim paving lifts, and roadways with seal coats and surface treatments for more than one continuous work shift. This work may include restriping the existing roadway before beginning construction, before seasonal suspension, and/or after seasonal suspension.

Remove conflicting pavement markings according to Subsection 670-3.04, Paint Removal, or cover them with black removable preformed marking tape.

Mark existing roadway sections that will be opened to traffic during the winter. Mark over the existing lines and markings, unless shown otherwise on the Plans or an approved TCP.

Maintain all interim pavement markings for their intended life including reapplication when necessary. There will be no compensation to upgrade interim pavement markings required for work operations lasting up to 2 weeks.

Use only temporary raised pavement markers or removable preformed retroreflective marking tape as interim pavement markings on final pavement surfaces. Completely remove and dispose of them when you place the final markings. Completely remove any residual adhesive that might misguide motorists. Place final pavement markings on finished pavement surfaces and interim pavement surfaces before suspending work for the winter.

Stage construction to avoid routing traffic over conflicting markings for more than one continuous workshift. If you route traffic over conflicting markings during a workshift, delineate the roadway with a complement of warning signs, channelizing devices, and flaggers as required by the ATM.

Use only temporary raised pavement markers meeting Subsection 712-2.16 as interim markings on seal coat and surface treatment pavements. Install the markers according to the manufacturer's instructions before applying the asphalt surface material and cover coat. Remove the vinyl protective covers after applying the asphalt pavement.

On multicourse surface treatments, install the temporary raised pavement markers after applying the full width of the first layer of cover coat. Install the markers on each day's completed surface before removing the pilot car operations and allowing unescorted traffic on the surface treatment.

Do not place final pavement markings until traffic has traveled over the seal coat or surface treatment for at least 14 days. Apply final pavement markings within 10 days of completing the final sweeping or brooming of the mainline seal coat or surface treatment.

643-4.01 METHOD OF MEASUREMENT. Section 109 and as follows. Quantities will not be measured during winter suspension of work.

1. Traffic Maintenance. Calendar Day: Every day shown on the calendar, beginning and ending at midnight. Measurement begins on the day following your receipt of the Notice to Proceed or on the first day of work at the project site, whichever is later, and ends on the date of project completion.

2. Traffic Control Device Items. By the number of units of each bid item shown on the bid schedule (or the Traffic Control Rate Schedule, if item 643(25), Traffic Control, is included) that are installed, accepted, and operational. Incomplete or unsatisfactory devices will not be measured. Special Construction Signs are measured by the total area of legend-bearing sign panel, as determined under Subsection 615-4.01. Items measured by the day are for each item per 24-hour period.

3. Traffic Maintenance Setup Items. By each lane closure or one-lane road in place per hour. By each detour or road closure in place per 24-hour period.

4. Portable Concrete Barrier. By each nominal 10-foot section placed to protect or channelize traffic as specified on the approved TCPs. Each transition piece (sloping end) will be measured as a single section. For the initial placement and each subsequent relocation when moved more than 10 feet in any direction.

5. Temporary Crash Cushion. By each acceptable installation.

6. Interim Pavement Marking. By the single-stripe station. A single stripe is a marking or a temporary raised pavement marker 4 inches wide. Wider striping is measured in multiples of 4 inches. Centerline gaps are not deducted from measurements.

7. Flagging and Pilot Car. By the number of approved hours, supported by certified payroll.

8. Street Sweeping and Power Brooming. By the number of operated hours, supported by certified payroll and approved by the Engineer.

9. Watering. By the 1,000 gallons (M-Gallon) of water applied. The Engineer may specify measurement by weight or volume. If by weight, convert to gallons at 8.34 pounds per gallon. If by volume, convert to gallons at 7.48 gallons per cubic foot.

10. Traffic Price Adjustment. By each minute that any lane of traffic is not open to full use by the traveling public, measured to the nearest minute. The Engineer will determine whether the roadway is opened to full use.

11. Traffic Control. By the units specified in the Special Provisions.

12. Portable Changeable Message Board Sign. By the 24-hour period for each sign, as shown on an approved TCP and displaying an approved message.

13. Plastic Safety Fence. By the linear foot, as placed, to protect or channelize pedestrian traffic as shown on an approved TCP. Any adjustments in configuration of the fence at the same location that does not result in an increased amount of fence is not measured. Opening and closing the fence to gain access to and from the worksite is not measured.

14. Temporary Sidewalk Surfacing. By the square yard as shown on an approved TCP.

15. Temporary Guardrail. By the linear foot, including end treatments, as shown on an approved TCP.

643-5.01 BASIS OF PAYMENT.

1. Traffic Maintenance. The contract price includes all resources required to provide the Worksite Traffic Supervisor, all required TCPs and public notices, the Construction Phasing Plan, and the maintenance of all roadways, approaches, crossings, intersections and pedestrian and bicycle facilities, as required. This item also includes any Traffic Control Devices required but not shown on the bid schedule.

   Items required by the Contract that are not listed on the bid schedule or not included in other items are subsidiary to Item 643(1) or 643(2) Traffic Maintenance, except the following:

   Traffic Price Adjustment
   Traffic Maintenance Setup

2. Traffic Control Device Items. The contract price includes all resources required to provide, install, maintain, move, and remove the specified devices. Warning lights, high-level warning devices, vertical panels, and sign supports required for traffic control devices are subsidiary.

3. Traffic Maintenance Setup Items. Each setup consists of all traffic control devices, flaggers, pilot cars, and subsidiary items necessary to implement the TCP shown on the Plans. Warning lights, high-level warning devices, vertical panels, and sign supports required for traffic control devices are subsidiary.

Construction and obliteration of temporary roadways, when required on the Plans or approved TCP under a traffic maintenance setup item, is paid for under their respective roadway pay items.

When topsoil or seeding is required for detours, payment will be made under Sections 620 and/or 618.

4. Portable Concrete Barrier. The contract price includes all resources required to provide, install, maintain, move 10 feet or less, and remove each barrier.

5. Temporary Crash Cushion. The contract price includes all resources required to provide, install, maintain, repair, and remove each crash cushion.

6. Interim Pavement Marking. The contract price includes all resources required to provide, install, maintain, and remove the specified markings. Installation of word and symbol markings are subsidiary. The No-Passing Zone signing, described in Subsection 643-3.04, is subsidiary.

7. Flagging and Pilot Car. The contract price includes all required labor, vehicles, radios, flagger paddles and pilot car signs, and transportation to and from the worksite.

8. Street Sweeping and Power Brooming. The contract price includes all resources required to keep the roadway free of loose material. Time required to empty the street sweeper is subsidiary.

9. Watering. The contract price includes all resources required to provide watering, as directed.

10. Traffic Price Adjustment. If Item 643(23), Traffic Price Adjustment, is shown on the bid schedule, the total value of this contract will be adjusted, for lane closures or delays at the rates listed in Table 643-1.

11. Traffic Control. Payment for Item 643(25), Traffic Control, will be made at the unit rate value contained in the Traffic Control Rate Schedule shown in the Special Provisions for the accepted units of traffic control devices.

12. Portable Changeable Message Board Sign. The contract price includes all resources required to furnish, move, and operate the sign.

13. Plastic Safety Fence. The contract price includes all resources required to install, maintain, and remove the fence.

14. Temporary Sidewalk Surfacing. The contract price includes all resources required to construct, maintain, and remove the surfacing.

15. Temporary Guardrail. The contract price includes all resources required to construct, maintain, and remove the guardrail.

Payment will be made under:

Pay Item	Pay Unit
643(1) Traffic Maintenance	Calendar Day
643(2) Traffic Maintenance	Lump Sum
643(3) Permanent Construction Signs	Lump Sum
643(4) Construction Sign	Day
643(5) Type II Barricade	Day
643(6) Type III Barricade	Day
643(7) Traffic Cone/Tubular Marker	Day
643(8) Plastic Safety Fence	Linear Foot
643(9) Drum	Day

643(10) Sequential Arrow Panel, Type C	Day
643(11) Special Construction Signs	Square Foot
643(12) Portable Concrete Barrier	Each
643(13) Temporary Crash Cushion	Each
643(14) Interim Pavement Marking	Station
643(15) Flagging	Hour
643(16) Pilot Car	Hour
643(17) Street Sweeping	Hour
643(18) Watering	M-Gallon
643(19) Lane Closure	Hour
643(20) Detour	Day
643(21) Road Closure	Day
643(22) One Lane Road	Hour
643(23) Traffic Price Adjustment	Contingent Sum
643(24) Portable Changeable Message Board Sign	Day
643(25) Traffic Control	Contingent Sum
643(26) Temporary Sidewalk Surfacing	Square Yard
643(27) Temporary Guardrail	Linear Foot
643(28) Power Brooming	Hour